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AUTHOR Silins, Halia; Zarins, Silja; Mulford, Bill
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ABSTRACT

The concept of secondary schools as learning organizations is being examined as part of a research project involving South Australian and Tasmanian secondary schools. The authors defined learning organizations as schools that: employ processes of environmental scanning; develop shared goals; establish collaborative teaching and learning environments; encourage initiatives and risk taking; regularly review all aspects related to and influencing the work of the school; recognize and reinforce good work; and, provide opportunities for continuing professional development. A survey of 2,000 teachers and principals was conducted using items representing these 7 dimensions. This observed data was analyzed and a confirmatory factor analysis procedure using LISREL (structural equation modelling software) was employed to test the measurement models generated. Discussion of these results clarifies the characteristics and processes recognized as existing in secondary schools that relate to the reconceptualization of schools as learning organizations and addresses the usefulness of this approach. (Contains 21 references.) (Author/TEJ)

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# WHAT CHARACTERISTICS AND PROCESSES DEFINE A SCHOOL AS A LEARNING ORGANISATION?
# IS THIS A USEFUL CONCEPT TO APPLY TO SCHOOLS?

by

**Halia Silins**
**Flinders University Of South Australia**

**Silja Zarins**
**Department of Education, Training and Employment**

**Bill Mulford**
**University of Tasmania**

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**School of Education**
**Phone: +61 8 82013334**
**Fax: +61 8 82013184**
**Email: Halia.Silins@flinders.edu.au**

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# What characteristics and processes define a school as a learning organisation? Is this a useful concept to apply to schools?


**Abstract**

Halia Silins, Silja Zarins, Bill Mulford

The concept of secondary schools as learning organisations is being examined as part of a research project involving South Australian and Tasmanian secondary schools. We defined learning organisations as schools that: employ processes of environmental scanning; develop shared goals; establish collaborative teaching and learning environments; encourage initiatives and risk taking; regularly review all aspects related to and influencing the work of the school; recognise and reinforce good work; and, provide opportunities for continuing professional development. A survey of 2,000 teachers and principals was conducted using items representing these seven dimensions. This observed data was analysed and a confirmatory factor analysis procedure using LISREL was employed to test the measurement models generated. Discussion of these results clarifies the characteristics and processes recognised as existing in secondary schools that relate to the reconceptualisation of schools as learning organisations and addresses the usefulness of this approach.


## INTRODUCTION

"Human learning in the 21st century will be as different from human learning in the 20th century as the micro-chip and neural networks are from the valve." (Lepani, 1994, p. 3). As we approach the new millennium the scope and pace of change seem to be accelerating in all areas of human existence. We have to move with it or ahead of it if we are not to be left behind. Schools are feeling this tidal wave of change in ways that "have left many educators – consciously or otherwise – confused, exhausted and disillusioned" (Deal, 1990, p. 131, cited in Mulford, 1998).

Change *can* be seen as evolutionary and dynamic with an emphasis on continuous learning and adaptation (Dixon, 1994; Fullan,1991; Fullan and Miles, 1992). The challenge for schools is to adopt change strategies that provide internal stability while moving ahead. This challenge may be able to be met in education and elsewhere by focussing on a change strategy where learning comes to be seen as "the single most important resource for organizational renewal in the postmodern age" ( Hargreaves, 1995). In this strategy, the school functions as a learning organisation in order to continue to improve performance and build capacity to manage change (Corcoran & Goertz, 1995) in an environment where schools are becoming increasingly borderless.

## DEFINING THE LEARNING ORGANISATION

The concept of a learning organisation originated in systems thinking and is typified by Senge's (1990) model of the 5 disciplines of a learning organisation. These are:

- Systems thinking - integrates knowledge from across the disciplines, focuses on wholes rather than parts, goes beyond events to their underlying structure and leads to experiencing the interconnectedness and inter-relationship of things;

- Personal mastery - drives people to expand their ability to achieve their goals. Since "organisations learn only through individuals who learn" (Senge, 1990, p.139), individuals must be able to continuously learn and improve so that the lifelong learning of adults is just as respected as the goal of fostering lifelong learning in students (Isaacson & Bamburg, 1992);
- Mental models - refer to the subconscious, taken for granted beliefs that limit our thinking about how the world works e.g. the mental model that students are vessels for teachers to fill constrains our ability to change. Mental models determine not only how we make sense of the world but how we act and what we perceive. They are our theories-in-use (Argyris, 1982). Bringing our mental models to awareness and re-examining them in the light of our espoused beliefs brings about change;
- Team learning - a critical discipline because "teams, not individuals, are the fundamental learning unit in modern organizations" (Senge, p.10). According to Senge, if teams learn they become a microcosm for learning throughout the organisation. Teams learn through an iterative process of movement between practice and performance. Most important organisational decisions are made in teams. We encourage cooperative learning for students but don't provide our teachers with the time, structures, cultural norms nor language to promote team learning. Most staff development programs only support the learning of individuals;
- Shared vision – which emerges from people who truly care about their work, who possess a strong sense of personal vision and who see the collective vision as one that can encompass the personal visions of all. It aligns what we do with what we say we want. Senge calls this the rudder that can keep the organisation on course during times of stress and stress is epidemic in most schools today.

Senge (1990) posits that learning organisations are characterised by valuing and developing these 5 disciplines and that the basic meaning of a learning organisation is one that is "continually expanding its capacity to create its future" (p. 14).

There is no single generally accepted definition of a learning organisation. Leithwood and Aitken (in press, cited in Mulford, 1998) define a learning organisation as "a group of people pursuing common purposes (individual purposes as well) with a collective commitment to regularly weighing the value of those purposes, modifying them when that makes sense, and continuously developing more effective and efficient ways of accomplishing those purposes" (p. 63). The most commonly mentioned elements of a learning organisation can be summarised as: coordinated group effort towards commonly shared goals; active commitment to continuous improvement and to the diffusion of best practices throughout the organisation; horizontal networks of information flow to help bring together expertise as well as links with the external world; and, the ability to understand, analyse, and use the dynamic system within which they are functioning (Keating, 1995).

## FOSTERING ORGANISATIONAL LEARNING IN SCHOOLS

Literature recognising the advantages of reconceptualising schools as learning organisations and advocating organisational learning has begun to accumulate (Cousins, 1994; Diggins, 1997; Fullan, 1993; Isaacson & Bamburg, 1992; Louis, 1994; Mulford, 1997, O'Sullivan, 1997; Stoll & Fink, 1996). However, systematic investigations of how schools might bring this about are still scarce.

Johnston (1998), using the Senge (1990) disciplines as a framework of analysis, conducted an investigation of Victorian secondary schools to discover to what extent they were developing as learning organisations. Four key characteristics were identified as being significant in the growth of schools as learning organisations. These were: the existence of inclusive collaborative structures; effective communication channels; integrated professional development programmes; and, learning-focussed leadership. Johnston recognised that two key areas remained to be addressed: the first is the need to design practical concrete strategies to promote organisational learning; and, the second

is to identify suitable outcomes that can be measured in schools purporting to be learning organisations.

Leithwood, Leonard & Sharratt (1998) reported the results of synthesising evidence from three independent studies of conditions that foster organisational learning in elementary and secondary schools. Their findings related to school culture, structure, resources and leadership. They identified collaborative and collegial school cultures that included norms of mutual support, respect for colleagues' ideas, a willingness to take risks in attempting new practices, the exchange of honest and candid feedback, shared celebrations of successes, a strong focus on the needs and achievements of the students, informal sharing of ideas and resources, and continuous professional growth (p. 262-263). The school structures that were found to support organisational learning were those that allowed for greater participation in decision making by teachers (p. 263). Current and sufficient resources supporting professional development to promote school initiatives were a decided boost to the teachers' learning (p. 263). Transformational forms of principal leadership were found to contribute significantly to school conditions fostering organisational learning processes as well as to organisational processes directly (p. 267).

Based on an examination of the literature, we identified 7 dimensions that characterise schools as learning organisations and define what we mean by organisational learning. These are:

- Environmental scanning - refers to the activities of the school that contribute to broadening the scope of the information, policy, theory and practice that is brought to bear on the school's development and decision making processes;
- Vision/goals - refers to the recognition of and commitment to a coherent and an agreed upon sense of direction that is forged and re-forged to guide the school's everyday actions and decisions as well as shape long term planning;
- Collaboration - refers to the extent that there is a climate of openness and trust that promotes collaboration, cooperation, support and involvement in the functioning of the school;
- Taking initiatives/risk - refers to the extent that school staff are open to change and feel free to experiment and take professional risks toward personal and whole school improvement;
- Review - refers to the extent that programs and practices are reviewed, evaluated and actioned;
- Recognition/reinforcement - refers to the extent that there is sincere recognition and valuing of effort, initiative and achievement; and,
- Continuing professional development - refers to the extent that encouragement, opportunity and resources are provided to enable all school staff to learn, develop and implement the knowledge, skills and attitudes they need to contribute to improving the school's performance as a whole.

Which dimensions of organisational learning characterise Australian secondary schools? In a recent review of the area where much rhetoric and little empirical work abounds, Cousins (1996) asked whether organisational learning was a unidimensional or multifaceted construct. In the process of identifying the dimensions operating in schools, we addressed Cousins' question by investigating the underlying structure of the organisational learning construct as defined by secondary school teachers and principals.

## ORGANISATIONAL LEARNING - AN EMPIRICAL INVESTIGATION

For the study reported here, we have used data drawn from a survey of secondary schools carried out in South Australia and Tasmania as part of a larger, federally funded, 3 year collaborative research project titled "Leadership for Organisational Learning and Student Outcomes" (LOLSO). The project is supported by the respective state education authorities. The LOLSO Project was developed to systematically investigate the emerging reconceptualisation of schools as learning organisations. For the purposes of this research, organisational learning refers to the way the whole

school staff, collaboratively and on a continuous basis, learn and put learnings to use. We believe it is this collective, continuous learning initiative that results in a learning organisation.

The Project surveyed teachers and principals from 50 South Australian secondary schools and 46 Tasmanian secondary schools to determine their perceptions of schools as learning organisations, their views on school management and the nature of principals' leadership. The aims, nature and scope of the larger project and the results of some of the preliminary investigations have been reported elsewhere (Silins & Mulford, 1998).

This study focusses only on the perceptions of schools as learning organisations. The questionnaire for this section was constructed using the 7 dimensions defining schools as learning organisations that employ the processes related to environmental scanning, developing shared goals, establishing collaborative teaching and learning environments, encouraging initiatives and risk taking, regularly reviewing aspects related to and influencing the work of the school, recognising and reinforcing good work, and providing opportunities for continuing professional development. Teachers and principals responded to items representing these 7 dimensions on a self-report 5-point Likert scale ranging from strongly disagree (value 1) to strongly agree (value 5). Nearly 2,000 responses provided the information on staff perceptions of schools as learning organisations for analysis.

**Data analysis**

Exploratory factor analysis, using principal component analysis of responses on 40 organisational learning items and varimax rotation, indicated the most likely structure of the organisational learning construct. The seven factor structure used to generate the questionnaire items was not supported by the observed data. A four factor solution appeared to fit the data better and this measurement model was tested using a confirmatory procedure employing the structural equation modelling software, LISREL 8. A LISREL output was generated using 960 South Australian responses and cross-validated using 1022 Tasmanian responses for the following models:

1. One factor model
2. Four factor correlated model
3. Four factor correlated nested model

**Results**

Table 1 reports goodness of fit indices for evaluating the three models derived from LISREL and employed as criteria. The indices are: RMSEA (Root mean square error of approximation); GFI (Goodness of fit); AGFI (Adjusted goodness of fit); PGFI (Parsimony goodness of fit); and, CFI (Comparative fit). The four factor correlated nested model indicated the best fit for both the South Australian and Tasmanian data.

The results indicated that there is an underlying single factor (organisational learning) as well as four separate and correlated component factors. In terms of the question posed by Cousins (1996), our data define organisational learning as a unidimensional concept with 4 factors. These four factors are depicted as: Collaborative climate; Taking initiatives; Improving school performance; and, Professional development.

Hajnel, Walker and Sackney (1998) reported conducting a factor analysis of an organisational learning behaviour scale with 15 items drawn from a larger project identifying school improvement initiatives and indicators of institutionalisation. They identified three underlying dimensions: collaboration, individual learning, and a sense of vision. Although their sample was too small to conduct the necessary confirmatory factor analysis to evaluate their model, the similarities of these

dimensions to our four factors lends some strength to their model. Our results also support those that have asserted that collaboration and a sense of purpose characterise schools as learning organisations (Louis, 1994).

Table 2 provides operational definitions of the factors that form the organisational learning construct. The items defining the factors are listed in descending order of strength and significance of loadings associated with each factor. The four factors identified are summarised as follows:

Collaborative climate refers to a school where collaboration is the norm. Teachers participate in most significant school-level policy decisions and help to establish the school's vision or goals. Discussions amongst colleagues are open and candid and information is shared with other members of the school community including parents. Staff are valued.

Taking initiatives and risks refers to staff being empowered to make decisions and feeling free to experiment and take risks. The school structures support teacher initiatives, the administrators promote inquiry and dialogue and are open to change.

Improving school performance. The school culture encourages critical examination of current practices and continuous learning for improvement. The school staff keep abreast of external events that may impact on their school. The curriculum is aligned with the school's vision and goals. Information from other schools and from professional associations is used to support learning.

Professional development. - Staff engage in professional development. Professional reading is a source of learning and so are other schools. Developing skills of how to work and learn in teams is seen as important. External advice is sought as appropriate and school leaders provide all the support they can to promote professional development.

## DISCUSSION

The results of this study demonstrate that teachers and principals do identify characteristics and processes in secondary schools that have much in common with contemporary notions of learning organisations. Analysis of their responses has provided evidence for the validity of applying the learning organisation construct to schools and has identified four factors that contribute to our understanding of how this construct is defined in secondary schools in South Australia and Tasmania. How useful is it to apply this concept to schools? Our data indicates that the characteristics and processes associated with learning organisations that have been explicated in the four factors can be used to differentiate between secondary schools in terms of their development as learning organisations.

To assess the extent to which secondary schools in the two States were operating as learning organisations, we compared our hypothesised seven dimensions (Environmental scanning, Vision/goals, Collaboration, Taking initiatives/risks, Review, Recognition/reinforcement, Continuing professional development) with the four factors that emerged from our empirical investigation (Collaborative climate, Taking initiatives and risks, Improving school performance, Professional development).

Elements of Environmental scanning, Vision/goals and Review were identified by teachers and principals in their schools and contributed to defining Improving school performance. Environmental scanning and Review were related to the monitoring of progress towards the school's goals which are aligned with the curriculum. The immediate concerns of secondary school teachers and principals centred on developing and improving their own programs and practice. There is a need to expand concerns to encompass the school as a whole. The development of

systems thinking requires an understanding of the interconnectedness of the parts and their contribution to the direction in which the school is heading.

The dimensions of Collaboration and Continuing professional development were closely represented in secondary schools by the two factors of Collaborative climate and Professional development. The dimensions of Collaboration and Continuing professional development, within a learning organisation paradigm, need to permeate the hierarchical as well as the collegial organisational roles. The dimension of Recognition/reinforcement was distributed across the two observed factors, Collaborative climate and Professional development. Teachers (and principals) are, more often than not, left to develop their own sense of worth and gain private satisfaction from achieving personal goals. Staff need to experience satisfaction and rewards for engaging in and contributing to whole school issues.

Working together with colleagues in teams to achieve group goals while not uncommon in schools is still not commonplace. Finding ways to meaningfully link staff across internal real and imagined school boundaries is important if schools are to become learning organisations. Collaborative school climates are not easy to establish when teachers still work essentially as isolates interrupted by hurried social exchanges or by routine work-related matters.

Secondary teachers and principals are finding themselves involved in professional learning activities. School and curriculum reforms have necessitated regular review of practices and attitudes. It is difficult to resist the pressures of change and improvement especially with the introduction of performance appraisal and the demands of accountability. The goal of learning organisations, however, is not the spasmodic flurry of professional activity each time new demands are made of the school, curriculum or practices. Schools and their staff need to be ahead of the change game. The philosophy of a learning organisation must be that learning is a way of working just as it is a way of living.

We have applied the dimensions that characterise learning organisations to secondary schools and have found them to provide important insights into what schools need to do and what they need to become to meet the challenges of the future. Stoll & Fink (1996) have suggested that the difficult aspect of change for schools as organisations is "the problem of sustaining momentum" (p. 150). To be relevant, schools must become learning organisations where the "rate of learning within the organization must be equal to, or greater than, the rate of change in the external environment" (Garratt, 1987, cited in Stoll & Fink). These are compelling reasons for schools to be organisations that learn: "organizations that have a sense of direction and a firm fix on current reality through scanning their contexts; who plan effectively, efficiently and flexibly; organizations in which continuous development and improvement are integral parts of their culture" (p. 150).

**Table 1: Goodness of Fit Indices for 1-Factor, 4-Factor and 4-Factor Nested Models**

| Criteria | 1- Factor Model | 4 - Factor Model | 4 - Factor Nested Model |
|---|---|---|---|
| RMSEA | .088 | .085 | .070 |
| GFI | .92 | .92 | .95 |
| AGFI | .91 | .91 | .94 |
| PGFI | .83 | .82 | .80 |
| CFI | .90 | .91 | .94 |

RMSEA improvement reflected by a lower value
GFI, AGFI, PGFI, CFI improvement reflected by a higher value

**Table 2: Four Factors Operationally Defined**
(Items are listed in order of descending strength and significance of loadings)

| South Australia | Tasmania |
|---|---|
| **Collaborative climate** | **Collaborative climate** |
| Teachers have the opportunity to participate in most significant school-level policy | There is a spirit of openness and trust |
| Sensitive issues can be raised for discussion | We value diversity of opinion |
| Discussions among colleagues are honest and candid | We have a coherent and shared sense of direction |
| The vision/goals were established collaboratively | Staff are valued |
| We have a coherent and shared sense of direction | Most staff are committed to our vision/goals |
| We actively share information with the parents and community | There is open discussion of any difficulties identified through reviews |
| School structures encourage collaboration among staff | School structures encourage collaboration among staff |
| There is mutual support among teachers | Teachers have the opportunity to participate in most significant school-level policy |
| Staff are valued | The vision/goals were established collaboratively |
| There is a spirit of openness and trust | Discussions among colleagues are honest and candid |
| Most staff are committed to our vision/goals | Sensitive issues can be raised for discussion |
| There is open discussion of any difficulties identified through reviews | There is mutual support among teachers |
| We value diversity of opinion | There is ongoing professional dialogue among teachers |
| *ns There is ongoing professional dialogue among teachers | We actively share information with the parents and community |
| **Taking initiatives and risks** | **Taking initiatives and risks** |
| Administrators empower staff to make decisions | School structures support teacher initiative and risk taking |
| People feel free to experiment and take risks | Administrators are open to change |
| School structures support teacher initiative and risk taking | People feel free to experiment and take risks |
| School leaders promote inquiry and dialogue | There are rewards for staff who take the initiative |
| Administrators are open to change | School leaders promote inquiry and dialogue |
| People openly assess the results of trying something new | Administrators empower staff to make decisions |
| *nsThere are rewards for staff who take the initiative | People openly assess the results of trying something new |
| **Improving school performance** | **Improving school performance** |
| Curriculum is aligned with our vision/goals | We regularly monitor progress toward achievement of our vision/goals |
| We monitor the environment to find out what is happening that may impact on the school | We monitor the environment to find out what is happening that may impact on the school |
| We regularly monitor progress toward achievement of our vision/goals | Staff are engaged in continuous learning for improvement |
| Effectiveness of the teaching program is regularly monitored | We take time to reflect on and discuss our practice |
| We critically examine current practices | Curriculum is aligned with our vision/goals |
| Staff are engaged in continuous learning for improvement | We critically examine current practices |
| Good use is made of membership of teacher professional associations | Good use is made of membership of teacher professional associations |
| We take time to reflect on and discuss our practice | Effectiveness of the teaching program is regularly monitored |
| *nsMost of us actively seek information that improves our work | Most of us actively seek information that improves our work |
| **Professional development** | **Professional development** |
| Staff engage in ongoing professional development | I am able to have my professional development needs addressed |
| We learn from other schools | Professional development is closely tied to real school issues |
| There is a climate of continuous professional improvement | Groups of staff receive training in how to work and learn in teams |
| Good use is made of professional readings | Good use is made of professional readings |
| Groups of staff receive training in how to work and learn in teams | We learn from other schools |
| We make use of external advisers eg subject associations, project officers, consultants | We make use of external advisers eg subject associations, project officers, consultants |
| Administrators do all they can to encourage staff to develop professionally | Administrators do all they can to encourage staff to develop professionally |
| Staff learning is seen as important | Staff learning is seen as important |
| I am able to have my professional development needs addressed | Staff engage in ongoing professional development |
| Professional development is closely tied to real school issues | There is a climate of continuous professional improvement |

*ns indicates loading not significant

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## REFERENCES


Argyris, C. (1982). *Reasoning, learning and action: Individual and organizational.* San Francisco: Jossey-Bass.

Corcoran & Goertz (1995). Instructional capacity and high performance schools. *Educational Researcher, 17*(9), 27-31.

Cousins, B. J. (1996). Understanding Organizational Learning for educational Leadership and School Reform. In K. Leithwood, J. Chapman, D. Corson, P. Hallinger & A. Hart. *The International Handbook of Educational Leadership and Administration.* Netherlands: Kluwer.

Diggins, P.B. (1997). Reflections on Leadership Characteristics Necessary to Develop and Sustain Learning School Communities. *School Leadership and Management. 17* (3), 413-425.

Dixon, N. (1994). The organizational learning cycle. New York: McGraw-Hill.

Fullan, M.G. (1993). *Change forces: Probing the depths of educational reform.* London: Falmer Press.

Fullan, M.G. (1991). *The new meaning of educational change.* New York: Teachers College Press.

Fullan, M.G., & Miles, M.B. (1992). Getting reform right: What works and what doesn't. *Phi Delta Kappan, 73*(10): 744-752.

Hajnal, V., Walker, K. & Sackney, L. (1998). Leadership, Organizational Learning, and Selected Factors Relating to the Institutionalization if School Improvement Initiatives. *The Alberta Journal of Educational Research.* XLIV, (1). 70-89.

Hargreaves, A. (1995). Renewal in the age of paradox. *Educational Leadership, 52*(7), 14-19.

Johnston, C. (1998). Leadership and the learning organisation in self managing schools. Unpublished doctoral dissertation, University of Melbourne, Victoria.

Keating, D. (1995). The learning society in the information age. Toronto: The Canadian Institute for Advanced Research Program in Human Development, Working Paper No. 2.

Isaacson, N.& Bamburg, J. (1992). Can Schools Become Learning Organizations?. *Educational Leadership. 50*(3), 42-44.

Leithwood, K., Leonard, L. & Sharratt, L. (1998). Conditions Fostering Organizational Learning in Schools. *Educational Administration Quarterly. 34*(2), 243-276.

Louis, K.S. (1994). Beyond "managed change": Rethinking how schools improve. *School Effectiveness and School Improvement, 5*(1), 2-24.

Mulford, B. (1998). Organisational learning and educational change. In A. Hargreaves, A. Lieberman, M. Fullan & D. Hopkins (Eds). *International Handbook of Educational Change.* Norwell, MA: Kluwer Academic Publishers.

O'Sullivan, F. (1997). Learning Organisations – reengineering schools for lifelong learning. *School Leadership and Management. 17*(2), 217-230.

Rait, E. (1995). Schools as Learning Organisations. In S.B. Bacharach & B. Mundell (Eds). *Images of Schools: Structures and Roles in Organizational Behaviour..* Thousand Oaks, CA: Corwin Press.

Senge, P.M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization.* New York: Doubleday.

Silins, H., & Mulford, B. (1998, September). *School leadership for organisational learning and student outcomes: The LOLSO Project.* Showcase presentation at the ACEA National Conference, Gold Coast, Queensland.

Stoll, L., & Fink, D. (1996). *Changing our schools. Linking school effectiveness and school improvement.* Buckingham: Open University Press.